

REMARKS

Claims 4-6 and 24 have been amended. Proper support for the amendments to claims 4-6 is found in the specification, at least, at paragraphs [0033] - [0040] and [0052] - [0058]. The amendment of claim 4, for example, is supported by the non-pattern portion 12' in embodiment 2 and the pattern portion 12 in embodiment 5. The non-pattern portion 12' made of a positive type photoresist in embodiment 2 is rendered soluble in a developing solution after being irradiated by the second activation light 13. The pattern portion 12 made of a positive type photoresist in embodiment 5 is rendered insoluble in a developing solution after being irradiated by the second activation light 13.

Claims 1-26 are pending and under consideration. No new matter is presented in this Amendment. Claims 1, 15 and 26 are the independent claims.

REJECTIONS UNDER 35 U.S.C. §112:

Claims 4 and 6 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants have amended claims 2, 4-6 and 24 to correct the informalities noted by the Examiner regarding the irradiation of the thermal sensitive layer with an activation light. As noted above, proper support for the amendment to the claims is found in the specification, at least at paragraphs [0033] - [0040] and [0052] - [0058].

Accordingly, Applicants respectfully request that the rejection of claims 4 and 6 be withdrawn.

REJECTIONS UNDER 35 U.S.C. §102:

Claims 1-6, 9-13, 20-23 and 26 are rejected under 35 U.S.C. §102(e) as being anticipated by Moritani et al. (WO 99/14764 with the English Translation from U.S. Patent No. 6,411,591).

Regarding the rejection of independent claim 1, it is noted that claim 1 recites a pattern forming material comprising: a thermal sensitive material layer formed on a target substrate; a first light-to-heat converting layer formed between the thermal sensitive material layer and the target substrate; and a second light-to-heat converting layer formed on a surface of the thermal

sensitive material layer opposite to the first light-to-heat converting layer, wherein the thermal sensitive material layer is interposed between the first and second light-to-heat converting layers.

The Office Action relies on Moritani for a teaching of the features of independent claim 1 and states that the UV setting resin layer 8 is equivalent to the first light-to-heat converting layer and that the masking layer 3 is equivalent to the second light-to-heat converting layer.

Applicants respectfully traverse such characterization for at least the following reason.

Initially, it is noted that Moritani simply discloses coating the reflective layer 7 with an ultraviolet setting resin layer 8 (column 5, lines 20-22). There is no teaching in Moritani of any of the properties of the ultraviolet setting resin layer 8, and in particular, there are no teachings in Moritani that the ultraviolet setting resin layer 8 has light-to-heat converting properties. However, it is noted that an ultraviolet setting resin layer has protective properties, and therefore, without any further evidence of the properties of the ultraviolet resin layer, Applicants note that the ultraviolet resin layer does not meet the claimed features for which it is relied.

Regarding the masking layer 3, Applicants note that Moritani discloses in column 5, lines 11-14, forming over the ZnS-SiO₂ protective layer 2, a mask layer which is (CoO)₃₅(SiO₂)₄₅(NaO)₉(CaO)₅(MgO)₄(AlO₃), layer 3 to a thickness of about 90nm. That is, Moritani simply discloses forming an oxide layer over the protective layer. Moritani however, fails to teach or suggest that this oxide layer has any light-to-heat converting properties, as suggested in the Office Action. Accordingly, Applicants respectfully assert that Moritani fails to teach or suggest this novel feature of independent claim 1.

The Office Action also relies on the recording film 5 for a teaching of a thermal sensitive layer. The Office Action further states, at page 3, lines 12-13, that the recording film (thermal sensitive layer) comprises Ge-Sb-Te alloys as recited in claim 3. However, Applicants note that claim 3 does not relate to the thermal sensitive layer, but rather relates to the first and second light-to-heat converting layers. Therefore, it is not clear if the Office Action relies on the recording film 5 for a teaching of a light-to-heat converting layer, or for a teaching of the thermal sensitive layer. However, assuming that the Office Action were to rely on the recording film 5 for a teaching of the light-to-heat converting layer, then there is no teaching or suggestion in Moritani of a thermal sensitive material layer. Accordingly, Applicants respectfully assert that Moritani also fails to teach or suggest this novel feature of the independent claim.

Regarding the rejection of independent claim 26, it is noted that this claim recites some substantially similar features as claim 1. Thus, the rejection of this claim is also traversed for

substantially the same reasons set forth above.

Accordingly, Applicants respectfully assert that the rejection of claims 1 and 26 under 35 U.S.C. § 102(e) should be withdrawn because Moritani fails to teach or suggest each feature of independent claims 1 and 26.

Furthermore, Applicants respectfully assert that the rejection of dependent claims 2-6, 9-13 and 20-23 under 35 U.S.C. §102(e) should be withdrawn at least because of their dependency from claim 1 and the reasons set forth above, and because the dependent claims include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 2-6, 9-13 and 20-23 also distinguish over the prior art.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 1, 7, 8, 14, 15, 16, 17, 18, 19 and 25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moritani et al. (WO 99/14764 with the English Translation from U.S. Patent No. 6,411,591) in view of Dentinger et al. (U.S. Patent Application Publication No. 2002/0122918).

Regarding the rejection of independent claim 15, it is noted that claim 15 recites a method of forming a pattern using a pattern forming material including a thermal sensitive material layer formed on a target substrate, a first light-to-heat converting layer formed between the thermal sensitive material layer and the target substrate, and a second light-to-heat converting layer formed on a surface of the thermal sensitive material layer opposite to the first light-to-heat converting layer, the thermal sensitive material layer being interposed between the first and second light-to-heat converting layers, the method comprising: radiating a first activation light onto the first and second light-to-heat converting layers to generate heat therein and change a pattern portion of the thermal sensitive material layer; and removing a non-pattern portion of the thermal sensitive material layer.

Accordingly, claim 15 recites some substantially similar features as independent claim 1, and as noted above, Moritani fails to teach or suggest the novel features of independent claim 1. Therefore, Applicants respectfully traverse the rejection of independent claim 15 for substantially the same reasons set forth above.

Furthermore, the Office Action recognizes that Moritani does not teach or suggest the method of forming a pattern, as recited in claim 15, and relies on Dentlinger for such teachings.

However, Applicants respectfully assert that Dentlinger does not teach or suggest a

method of forming a pattern, as suggested in the Office Action, and therefore Dentlinger fails to cure the deficiencies of Moritani for at least the following reasons.

Dentlinger teaches a microstructure and a method of forming the microstructure. The method includes exposing a portion of a first composition to electromagnetic radiation of a first wavelength to form a first pattern in the first layer. After exposing the first layer, a second composition having a second exposure wavelength is exposed to a second exposure wavelength forming a second pattern in the second layer. Thereafter, a portion of each layer is removed according to the patterns to form a multilayer microstructure with a cavity having a shape that corresponds to the portions removed.

In other words, Dentlinger simply teaches a method for forming a cavity in a microstructure having a substantial identical cross-sectional area along the height of the cavity (paragraphs 0030 and 0031 and Fig. 1). There is no teaching or suggestion in Dentlinger that the first and second layers are light-to-heat converting layers nor is there any teaching or suggestion that the non-pattern portion is removed, as recited in the independent claim. As a matter of fact, in Dentlinger the non-pattern portions of the layers remain, thereby forming the cavity. In other words, Dentlinger appears to teach a method opposite to the one recited in independent claim 15.

Accordingly, Applicants respectfully assert that Dentlinger fails to teach or suggest the features for which it is relied and furthermore fails to cure the deficiencies of Moritani.

Accordingly, Applicants respectfully assert that the rejection of claims 1 and 15 under 35 U.S.C. §103(a) should be withdrawn because neither Moritani nor Dentlinger, whether taken singly or combined, teach or suggest each feature of independent claims 1 and 15.

Furthermore, Applicants respectfully assert that dependent claims 7, 8, 14, 16-19 and 25 are allowable at least because of their dependency from claims 1 and 15, and because they include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 7, 8, 14, 16-19 and 25 also distinguish over the prior art.

Claims 15 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moritani et al. (WO 99/14764 with the English Translation from U.S. Patent No. 6,411,591) in view of Dentlinger et al. (U.S. Patent Application Publication No. 2002/0122918) and further in view of Kouchiyama et al., Storage Technology Laboratories.

Regarding the rejection of independent claim 15, as noted above, neither Moritani nor Dentlinger, whether taken singly or combined, teach or suggest the novel features of

independent claim 15.

Kouchiyama, on the other hand, is relied upon solely for a teaching of features other than those recited in the independent claim. Therefore, Kouchiyama fails to cure the deficiencies of Moritani and Dentlinger.

Accordingly, Applicants respectfully assert that the rejection of independent claim 15 under 35 U.S.C. §103(a) should be withdrawn because neither Moritani, Dentlinger nor Kouchiyama, whether taken singly or combined, teach or suggest each feature of independent claim 15.

Furthermore, Applicants respectfully assert that dependent claim 25 is allowable at least because of its dependency from claim 15, and because it includes additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claim 25 also distinguishes over the prior art.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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